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Catalytic transformation of biomass derivatives to value-added chemicals and fuels in microreactors

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List of publications

- Ilmi M, **Hommes A**, Winkelman JGM, Hidayat C, Heeres HJ. Kinetic studies on the transesterification of sunflower oil with 1-butanol catalyzed by Rhizomucor miehei lipase in a biphasic aqueous-organic system. *Biochem Eng J*. 2016;114:110-118. doi:10.1016/j.bej.2016.06.026
- Ilmi M, Abduh MY, **Hommes A**, Winkelman JGM, Hidayat C, Heeres HJ. Process intensification of enzymatic fatty acid butyl ester synthesis using a continuous centrifugal contactor separator. *Ind Eng Chem Res*. 2018;57(2):470-482. doi:10.1021/acs.iecr.7b03297
- **Hommes A**, Heeres HJ, Yue J. Catalytic transformation of biomass derivatives to value-added chemicals and fuels in continuous flow microreactors. *ChemCatChem*. 2019;11(19):4671-4708. doi:10.1002/cctc.201900807
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- Figueirêdo MB, Keij FW, **Hommes A**, Deuss PJ, Venderbosch RH, Yue J, Heeres HJ. Efficient depolymerization of lignin to biobased chemicals using a two-step approach involving ozonation in a continuous flow microreactor followed by catalytic hydrotreatment. *ACS Sustain Chem Eng*. 2019;7(22):18384-18394. doi:10.1021/acssuschemeng.9b04020
- **Hommes A**, ter Horst AJ, Koeslag M, Heeres HJ, Yue J. Experimental and modeling studies on the levulinic acid hydrogenation to γ -valerolactone in packed bed microreactors. *Chem Eng J*. 2020;399:125750. doi:10.1016/j.cej.2020.125750
- **Hommes A**, Disselhorst B, Yue J. Aerobic oxidation of benzyl alcohol in a slug flow microreactor: Influence of liquid film wetting on mass transfer. *AIChE J*. 2020. doi:10.1002/aic.17005
- **Hommes A**, Disselhorst B, Janssens HMM, Stevelink RJA, Heeres HJ, Yue J. Mass transfer and reaction characteristics of the homogeneously catalyzed aerobic HMF oxidation in slug flow microreactors. *Submitted to Chem Eng J*.
- **Hommes A**, Hazenberg MCL, Kraakman JJ, Susanti, Yue J. Penetration model description for liquid-liquid extraction in slug flow microreactors. *To be submitted to Ind Eng Chem Res*.
- **Hommes A**, van der Veen S, Zong J, Yue J. Influence of wall wettability on gas-liquid mass transfer characteristics in slug flow microreactors. *Manuscript in preparation*.
- **Hommes A**, Zong J, Schuring HR, Yue J. Pressure drop of single phase and two phase gas-liquid flow through packed bed microreactors. *Manuscript in preparation*.

- **Hommes A**, Zong J, Schuring HR, Yue J. Pressure drop of gas-liquid slug flow through capillary microchannels: Influence of wettability. *Manuscript in preparation*.

Presentations at international conferences

- **Hommes A**, Janssens HMM, Heeres HJ, Yue J. Intensification of the oxidation of HMF using a Co/Mn/Br catalyst in a continuous flow microreactor. CHAINS 2015: Chemistry Matters for the Future, Veldhoven, Netherlands, December 2015.
- **Hommes A**, Heeres HJ, Yue J. Intensification and mass transfer characteristics of HMF oxidation using a Co/Mn/Br catalyst under mild conditions in a continuous flow micro-reactor. 10th World Congress on Chemical Engineering (WCCE-10), Barcelona, Spain, October 2017.
- **Hommes A**, Disselhorst B, Heeres HJ, Yue J. Homogeneous aerobic oxidation of 5-hydroxymethylfurfural in continuous flow microreactors. The 15th Netherlands Process Technology Symposium (NPS-15), Enschede, Netherlands, May 2018.
- **Hommes A**, Kraakman JJ, Hazenberg MCL, Susanti, Heeres HJ, Yue J. Penetration model description for liquid-liquid extraction in slug flow in microreactors. International Conference on Micro Reaction Technology (IMRET-15), Karlsruhe, Germany, October 2018.
- **Hommes A**, Schuring HR, Heeres HJ, Yue J. Pressure drop studies on single and two phase flow through packed bed microreactors. International Conference on Micro Reaction Technology (IMRET-15), Karlsruhe, Germany, October 2018. (poster)
- **Hommes A**, de Wit T, Heeres HJ, Euverink GJW, Yue J. Biphasic enzymatic biodiesel production in a slug flow capillary microreactor. International Conference on Micro Reaction Technology (IMRET-15), Karlsruhe, Germany, October 2018. (poster)

Other presentations

- **Hommes A**, Janssens HMM, Heeres HJ, Yue J. Intensification of chemocatalytic biomass conversion in continuous flow microreactors. ENTEG Seminar, Groningen, Netherlands, October 2015. (poster)
- **Hommes A**, Heeres HJ, Yue J. Intensification of chemocatalytic biomass conversion by multiphase processing in continuous flow microreactors. ENTEG Seminar, Groningen, Netherlands, October 2016. (poster)
- **Hommes A**, Heeres HJ, Yue J. Intensification of chemocatalytic biomass conversion by multiphase processing in continuous flow microreactors. ENTEG Seminar, Groningen, Netherlands, October 2017. (1st jury prize)
- **Hommes A**, Heeres HJ, Yue J. Multiphase microreactors for the conversion of biomass derivatives to value-added chemicals. Groningen Engineering Centre Annual Scientific Meeting, Groningen, Netherlands, January 2018. (poster)